

Practice C

For use with pages 91–98

Write an equation of the line that passes through the given points.

1. $(2, -1), (3, 8)$
2. $(-5, 3), (2, 2)$
3. $(1, -6), (1, -2)$
4. $(7, 2), (-4, -6)$
5. $(3, 8), (-1, 8)$
6. $(6, 6), (-2, -2)$

Write an equation of the line that passes through the given point and is perpendicular to the given line.

7. $(1, 3), y = 2x - 1$
8. $(-3, 2), y = -4x + 3$
9. $(1, 1), y = \frac{1}{2}x - 7$
10. $(-3, 1), y = -\frac{2}{3}x + 4$
11. $(7, -3), y = 8$
12. $(5, 2), x = 2$

Write an equation of the line that passes through the given point and is parallel to the given line.

13. $(-2, 1), y = 2x + 5$
14. $(1, -1), y = -x + 3$
15. $(-3, -5), y = 12 + x$
16. $(3, -4), y = \frac{1}{2}x - 8$
17. $(10, -12), y = -\frac{3}{4}x + 1$
18. $(4, -9), y = 14$

Labor Force In Exercises 19–21, use the following information.

From 1840 to 1850, the rate at which the percent of the labor force in nonfarming occupations increased was approximately linear. In 1840, 31.4% of the labor force held nonfarming jobs. In 1850, 36.3% of the labor force held nonfarming jobs.

19. Write a linear model for the percentage of the labor force in nonfarming occupations. Let $t = 0$ represent 1840.
20. In 1860, the percent of the labor force in nonfarming occupations was 41.1%. Is the model for the percentage of nonfarming occupations from 1840 to 1850 still an appropriate model?
21. In 1870, the percent of the labor force in nonfarming occupations was 47.0%. Is the model for the percentage of nonfarming occupations from 1840 to 1850 still an appropriate model?

College Tuition In Exercises 22–24, use the following information.

The rate of increase in tuition at a college from 1990 to 1995 was approximately linear. In 1990, the tuition was \$15,500 and in 1995 it was \$22,600.

22. Write a linear model for the tuition from 1990 to 1995. Let $t = 0$ represent 1990.
23. Write a linear model for the tuition from 1990 to 1995. Use the actual years as the coordinates for time.
24. Although the models in Exercises 22 and 23 are different, use both models to approximate the tuition in 2000. Do both models yield the same result?